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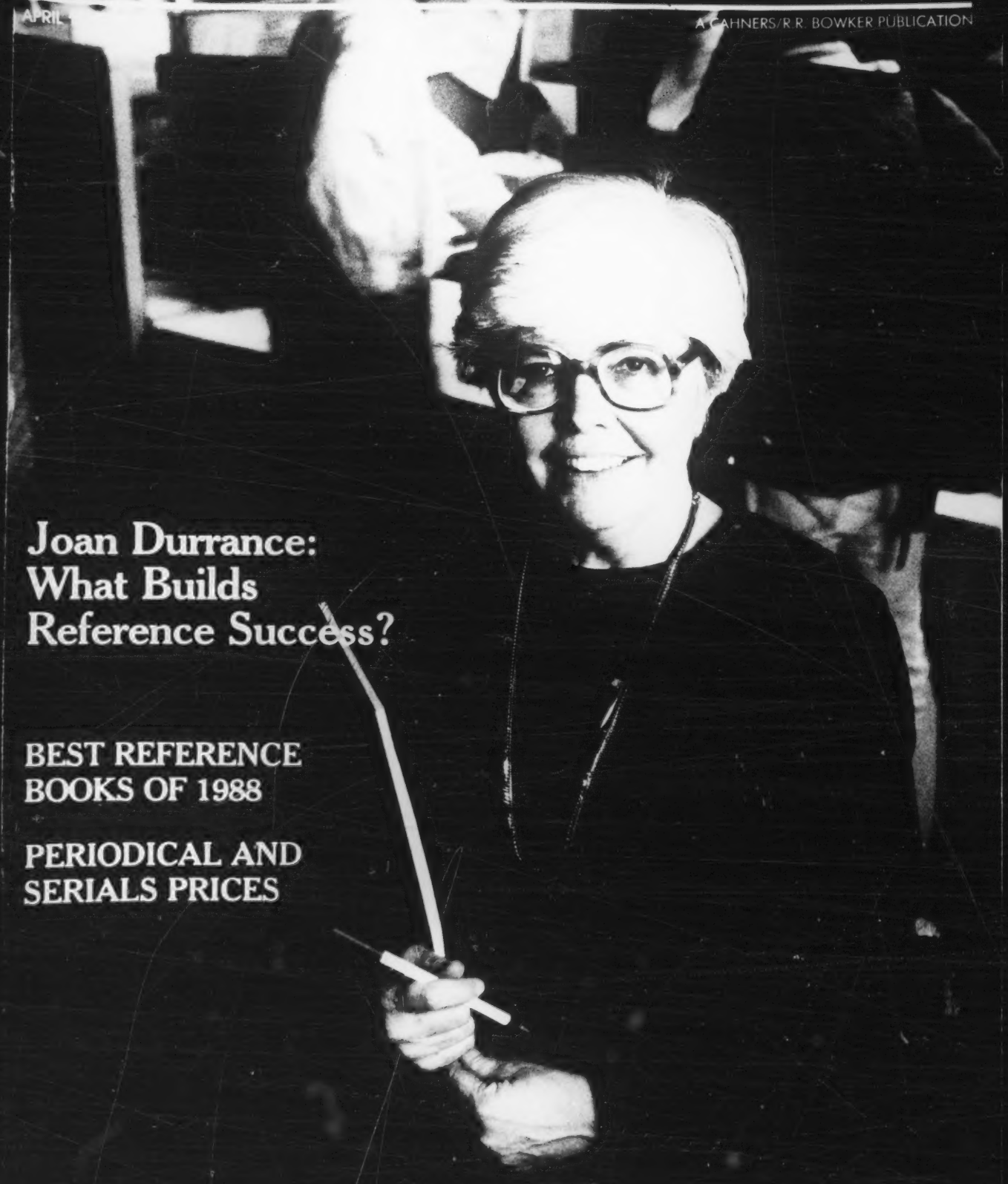

Joan Durrance: What Builds Reference Success?

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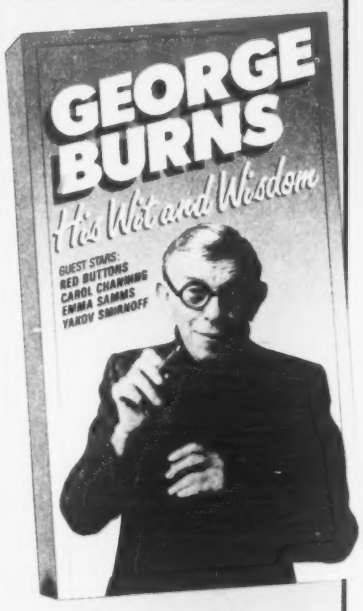

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Michigan's Durrance stresses environment as the key to the successful reference process. See "Reference Success: Does the 55 Percent Rule Tell the Whole Story?" page 31-36. Photograph by Eric Smith

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Editorial Offices: Library Journal, 249 W. 17th St., New York, NY 10011; 212-463-6819; FAX 212-242-6987.

Sales Offices: Library Journal, 249 W. 17th St., New York, NY 10011. Katherine Berlowe, 212-463-6798; Diane Carey, 212-463-6808; Nancy Iori, 212-463-6795.

Midwest: Cahners Publishing, 1350 E. Touhy Ave., Des Plaines, IL 60018-3358. Ron Shank, 312-390-2927.

West: James K. Levitt & Associates, 11921 Vose St., N. Hollywood, CA 91605. James K. Levitt, 818-764-5101.

South: Library Journal, 2975 Christophers Ct. NE, Marietta, GA 30062. Robin Mays, 404-977-9372.

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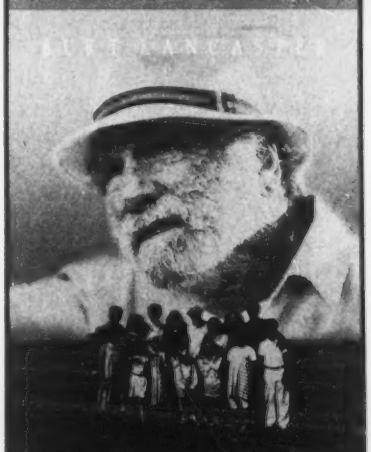

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"The environment seems as much to interfere with as to facilitate an effective reference interview"

REFERENCE SUCCESS:

Does the 55 Percent Rule Tell the Whole Story?

By Joan C. Durrance

A DECADE AGO, Mary Jo Lynch suggested that the public may not be well served by the environment in which the reference interview takes place.[1] That environment, she noted, results in interviews between librarians and library users (this profession is still reticent about the term "client") that are quite different from those conducted by other professionals.

There has been little investigation into the influence of the environment on the success of the reference interview. In addition, the public knows very little about the work of the professionals in libraries who are called, quaintly, librarians. Studies show that although 95 percent of the general public know that they can check books out of the library, far fewer know that libraries provide information service.[2] Furthermore, those who study the information needs of citizens find that only a small proportion of the public seeks information at the library.[3]

Accuracy has become the primary measure of the success of the reference interview. Using accuracy as the criterion for success, research using unobtrusive testing so consistently shows that librarians provide the correct answer only about half the time that Hernon and McClure have coined the 55 percent rule to describe reference success.[4]

The premise of these studies is that librarians fall short as information providers because they frequently fail to give accurate information. Most studies of the reference interview do not examine the impact of the environment in which it occurs. Given the nature of the environment, accuracy may not be the most appropriate measure of success.

In most professions, the client-professional interaction is enhanced by an environment that the professional controls and the client understands. Most professionals shape and control the environment in which they work and use it as a means of communicating and facilitating their client interactions. It determines the nature of the encounter between the professional and the client—physician and patient, attorney and client, loan officer and customer.

The study

This article, based on an unobtrusive study of the reference interview and the environment in which it occurs, examines the influence of 1) the setting of the reference interview on the interaction, and 2) accu-

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ERIC SMITH

***Author Joan Durrance** (r.) conducts a reference interview at the library of the University of Michigan*

racy and several other factors associated with librarian behavior on the success of the reference interview. Although most researchers who apply unobtrusive techniques use accuracy as the measure of reference interview success, the measure chosen by this researcher is the willingness of the inquirer to return to the same staff member at a later time.

The study was carried out over a one-year period by master's students enrolled in the University of Michigan School of Information and Library Studies. These students observed 266 reference interviews in 142 public, academic, and special libraries. Before participating in the study, students examined the literature of the reference interview and were prepared for data collection by the principal investigator.

Observations were made during breaks in the academic calendar to avoid oversampling libraries in the Ann Arbor area. Students prepared a reference question of importance to them with which to test the *modus operandi* of reference librarians. They either asked their question of a library staff member themselves or observed the interaction between a colleague and a librarian. In either case the librarian was not aware of the observation.

The data collection instrument included questions developed and reported in the literature by Schwartz and Eakin, Olsen, and Durrance; it provided for structured responses to 1) the activity of the staff member when the observer approached him or her; 2) the question and the nature of the response; and 3) library staff performance based on interpersonal behavior, interviewing skill, and search strategy.[5] (See Tables 1, 2, and 3.)

The observers were asked to decide if the staff member who responded to the inquiry was a librarian and to rank the contribution of various environmental and other clues to the decision. They were to indicate, given the option, whether they would return to the person who answered their question. This became the operational measure of success and was used to test the impact of interpersonal behavior and interviewing skills on the success of the reference interview.

Immediately following each interview, observers recorded responses to the reference interview on a five-page data-collection instrument, and each observer also submitted a narrative description of the environment and the interaction. Data were analyzed using statistical and text-organizing packages. Selected observations of students are included in this article.

Results: the libraries

The interviews were conducted in libraries from Vermont to California, with about two thirds in Michigan: 58% were in public libraries, 37% in academic, and the rest in government or special libraries.[6] In all, 142 different libraries were visited. Several libraries in the Ann Arbor area had multiple visits, but 86% of the libraries were visited either once or twice. Libraries in this study varied in size from public libraries with less than 49,000 volumes to the Library of Congress. Most academic libraries had between 150,000 and 499,000 volumes. Public libraries ran the full range of size, but 90% had fewer than 500,000 volumes; 19% less than 49,999; 24%, 50,000–99,999; and 17%, 100,000–499,999.

The reference environment

Although the physical arrangement of the reference area in these libraries varied considerably, the setting of the reference interview was usually either a desk or a counter marked "Reference" or "Information" or not marked at all. Occasionally the Reference Desk was separate from an Information Desk, where the function was to respond to directional questions and to screen and route questions.

Typically the observer described a situation where the librarian was seated at a desk, usually equipped with a telephone and sometimes also with a computer. The library staff member, often seated at the desk, usually faced the patron who stood. There was seldom a chair provided for the inquirer. Most librarians did not remain seated, however. They frequently moved around the reference room taking the inquirer to various sources of information. When a counter separated the librarian from the inquirer, both were likely to stand during the interviews.

The specific physical arrangement was less important than the messages transmitted to the inquirer by the environment about the functions that are supposed to occur at that desk. Some environments communicated very poorly to these trained observers, who are, of course, much more sophisticated than the general public about what goes on in libraries. Many observers had trouble identifying the reference desk.

Some environments clearly indicated the function of the desk using, of course, library terminology, "Reference Desk"; others identified the type of occupant; some even identified the individual at the desk, "Mary Doe, Reference Librarian."

In the environment created by the physician, the patient always

knows when s/he is talking with the doctor. The librarian's environment does not send such clear messages. The observers in this study were asked to indicate whether they thought they had worked with a librarian, a library assistant, or a student and, in addition, how sure they were of their choice.

This question, of course, would seldom need to be asked of the intelligent client of any other professional. One hundred and thirty-six of the observers (68%) said that they thought they had worked with a librarian, but only 35% of them felt quite sure. Forty-six of the observers thought they had worked with an assistant of some sort, but only four were absolutely sure; 17 believed they had worked with a student, but only one had no doubts.

Signage & other environmental clues

The use of signage or a name tag sometimes provided proof of identity.

> It was easy for me to identify the staff member who helped me as an information professional since she was wearing a tag with her name and title.

Signage helps the environment make more sense to the user. Signage varied considerably in these libraries. Signs indicating the *functions* occurring at a desk, i.e., "Reference" or "Information," were more frequent than those indicating the *performer* of the function, "Reference Librarian" or "Librarian." (It is interesting to remember that reference terminology was put into place nearly a century ago and at that time reflected more nearly what actually occurred at the reference desk—in most libraries, patrons were *referred* to books and librarians did not provide information services.) Nameplates or tags indicating the name of the performer were seen even less frequently.

Many observers relied on environmental clues, including signs, when deciding if the staff member who served them was a librarian; 58% ranked environmental clues at four or five (on a scale of one to five) as factors that led them to believe that the staff member with whom they had been working was a librarian. Observers who were sure that the individual they had dealt with was a librarian often extrapolated that information from clues provided by signs.

> The sign on the wall behind the desk said "Reference Librarian."
>
> There was a large sign in front of the medium-sized oak desk labeled "Information" and a desktop sign reading, "Lettie Baldwin, Librarian."

Signage was at times a source of confusion. Does a sign over the desk that says "Information" or "Reference" mean that anyone who is seated behind the desk is a librarian? Or, does a sign reading "Reference Librarian," which intermittently appears and disappears from a desk, mean, as one observer concluded, that when the sign is there a librarian is working and when it is absent, the staff member is not a librarian?

When there were no clues such as signage or a name tag, observers used other environmental clues to help them make their decisions.

> I was able to identify the individual who assisted me as a staff member because she walked out of a staff-only area behind the counter and approached the telephone which was on the counter.

The environment may send erroneous messages. At one reference desk in a university divisional library late one evening, the observer approached a young man seated behind a reference desk with a reference question, only to be told that he was a friend of the "librarian." When the "librarian" emerged from the stacks, the observer concluded from her age, her casual clothing, and her bright pink hair that she was not a librarian either.

Appearance

Appearance of the staff member (including age and dress) plays an important role in helping observers make decisions, especially when the environment fails to send a clear message; 56% used environmental clues to decide if they had been working with a librarian. Well-dressed, older individuals were assumed to be librarians while casually dressed, younger people were thought to be students.

> I think the man I worked with was a librarian. He was older and fairly well dressed. A person approximately 20 years of age and wearing jeans who had a picture ID on her shirt came up to him and waited deferentially until he had stopped helping me. I assume she was an assistant of some sort.

Evidence of professional skill

The actions of staff members played an important part in the decisions of observers; 63% drew conclusions based on the expertise showed by the staff member. Interviewing and listening skills, including being able to determine the level of need, and the ability to provide an appropriate answer, were seen as evidence of professional skill.

Accuracy, the use of an effective search strategy, and providing a satisfactory response were even more closely associated with the professional librarian by the observers. These qualities helped the observers decide that they had been working with a librarian. Evidence of expertise led students to believe that certain staff members were librarians, while others who apparently lacked expertise were thought to be students or nonprofessionals.

Table 1
Interpersonal Skill of the Librarian

	Friendly		Interested		Self-Confident		Nonjudgmental		Comfortable	
Rank	NLTR	WR	NLTR	WR	NLTR	WR	NLTR	WR	NLTR	WR
1 (Low)	13 (100%)	0 (0%)	19 (94%)	1 (6%)	7 (100%)	0 (0%)	5 (100%)	0 (0%)	8 (100%)	0 (0%)
2	24 (89)	5 (11)	29 (90)	4 (10)	20 (76)	6 (24)	10 (73)	3 (27)	40 (96)	2 (4)
3	29 (60)	18 (40)	26 (49)	28 (51)	26 (53)	21 (47)	23 (71)	9 (29)	30 (54)	26 (46)
4	19 (21)	57 (79)	14 (15)	73 (85)	26 (31)	58 (69)	22 (34)	36 (66)	15 (15)	65 (85)
5 (High)	12 (12)	89 (88)	9 (14)	62 (86)	18 (19)	84 (81)	30 (23)	110 (77)	6 (9)	76 (91)
Total	**97 (36%)**	**169 (64%)**	**97 (37%)**	**168 (63%)**	**97 (36%)**	**169 (64%)**	**90 (36%)**	**158 (64%)**	**99 (37%)**	**169 (63%)**

NLTR = Not Likely To Return; WR = Would Return

Table 2
Interviewing and Listening Skills

Rank	Interview Skill NLTR	Interview Skill WR	Determined Need NLTR	Determined Need WR	Met Time Frame NLTR	Met Time Frame WR
1 (Low)	32 (85%)	5 (15%)	30 (87%)	3 (13%)	25 (86%)	3 (14%)
2	33 (85)	6 (15)	28 (78)	7 (22)	21 (76)	8 (24)
3	20 (38)	37 (62)	21 (44)	32 (56)	17 (46)	15 (54)
4	9 (16)	57 (85)	15 (19)	52 (81)	17 (26)	43 (74)
5 (High)	1 (2)	57 (98)	1 (2)	69 (98)	11 (14)	86 (86)
Total	**95 (37%)**	**162 (63%)**	**95 (37%)**	**163 (63%)**	**91 (37%)**	**155 (63%)**

NLTR = Not Likely To Return; WR = Would Return

Table 3
Searching Skills

Rank	Strategy NLTR	Strategy WR	Accuracy NLTR	Accuracy WR	Satisfied w/answer NLTR	Satisfied w/answer WR
1 (Low)	14 (90%)	1 (10%)	22 (94%)	1 (6%)	37 (84%)	6 (16%)
2	26 (84)	4 (16)	24 (76)	9 (24)	35 (73)	10 (27)
3	28 (54)	25 (46)	18 (48)	15 (52)	15 (41)	16 (59)
4	15 (22)	54 (78)	12 (21)	47 (79)	9 (20)	34 (60)
5 (High)	11 (14)	80 (86)	15 (18)	82 (82)	11 (13)	93 (87)
Total	**94 (36%)**	**164 (64%)**	**91 (37%)**	**154 (63%)**	**107 (40%)**	**159 (60%)**

NLTR = Not Likely To Return; WR = Would Return

> The librarian asked open-ended questions and paraphrased my question and then asked, "Is this what you want?" probing until she was able to find out what I needed.

These clues were often in conjunction with environmental or appearance clues.

> While I was never able to positively identify the person who worked with me as a librarian, I made the assumption that she was, based on two factors: she was sitting at the counter and I observed her helping students with the *Reader's Guide*. (The library provided no other clues).

Occasionally conflicting clues confused the observers.

> I got mixed signals. Her competence level was very high, but she looked like a student.

When libraries were initially designed, the information function was minimal, but past decades have brought major changes in information giving in libraries. If the trained observer has difficulty interpreting the present reference interview environment, it is no wonder that the general public has little understanding of the information functions of libraries. The findings presented above suggest that many libraries may make it necessary for librarians to compensate for a dysfunctional reference environment and that measures of success should reflect its influence.

Willingness to return

The reference environment that sends out garbled messages about the information function places an extra burden on librarians and limits the effectiveness of the reference interview. Given the constraints discussed above, the remainder of the article examines the actions of the professionals who operate in this environment and compares accuracy as a measure with other factors.

Accuracy is the primary measure used in unobtrusive studies of the success of the reference interview. It has many advantages as a measure: tests for accuracy are fairly easy for a researcher to construct, replicate, administer, and interpret. However, a number of factors in addition to accuracy contribute to reference success.

In this study, a measure of success was chosen that focuses more broadly on the client-professional interaction—the willingness of the inquirer to return to the staff member with another question at a later time. This measure permits the examination of accuracy within the context of other factors that contribute both to the success of the reference interview and the client professional relationship.

"Willingness to return" permits a comparison of accuracy and other factors, including staff activity upon approach, the observer's ability to identify the professional, interpersonal style, interviewing skill, and search strategies used. Using this definition of success, approximately 63 percent of the interviews were successful, a figure only slightly higher than that which is obtained when accuracy is used as the measure of success.

Activity of staff upon approach

As Bunge and Murfin found recently, what the staff member was doing when approached seems to have an effect on the success or failure of the interview.[7] When the librarian was either free or had been working with another patron when approached, over half of the observers said that they would probably return to him or her.

Less than one in five said that they would return to a staff member when they found it necessary to wait for him or her to return to the desk, when s/he had been engaged in another activity such as professional work, or when s/he had been in a discussion with another staff member. Some of the observers whose question had interrupted a library staff member's activity reported that the librarian's body language or manner conveyed a message that what had been going on was of more importance than the interrupting question.

Name identification

Present practice discourages name identification. However, there is no evidence to indicate that this results in effective practice and there is a growing body of writing that criticizes this practice.[8] It is not surprising then, that less than one in five of the observers discovered the name of the librarian. Those who did were more than three times as likely to say that they would return to that individual another time. One observer who learned the name of the library staff member was especially satisfied with the reference interview.

> After she had completed the reference discussion, the librarian said, "My name is Mrs. Drummond, and if you

need any more help, I will be back from lunch in a half hour." Needless to say, this librarian was exceptional in all respects.

Several who did not learn the name of the librarian were frustrated by shift changes and the need to start all over again with a new staff member when they returned to the desk after following up on a lead provided by the librarian. One persistent observer who sought to learn the name of a librarian so that his partially answered question might be completed at a later time was rebuffed.

Variables that influence success

Several researchers have tested factors that are positively associated with providing accurate answers. For example, Gers and Seward reported on factors that contributed toward providing accurate answers in a statewide unobtrusive study.[9] Most of the factors tested in this study, similar to some tested by Gers and Seward, were presented by Schwartz and Eakin.[10]

They may be grouped as follows: 1) the interpersonal skill or style of the librarian, as exhibited by: friendliness, interest in the question, self-confidence, being nonjudgmental, and the ability to make the questioner feel comfortable; 2) interviewing and listening skills, including technique, the ability to determine level of need, and providing an appropriate answer within the questioner's time frame; and 3) the effectiveness of the librarian's approach to the question, including: search strategy, accuracy, and the ability to provide the questioner with a satisfactory answer.

Interpersonal variables

Librarians varied in their interpersonal skills. Observers frequently gave librarians the highest ranking (5) on the quality of being nonjudgmental (57%); less than four in ten exhibited either a great deal of friendliness or self-confidence; less than a third made the questioner feel quite comfortable; and finally, only slightly more than a quarter showed the highest level of interest in the question.

Comments on the positive effect of the staff member's interpersonal skills on the reference interview show the impact these traits had.

> The staff member's openness and friendliness took away any pressure or awkwardness that could be felt when asking for help in this strange, public situation.
>
> Her demeanor was not in the least condescending or forbidding. It invited more questions. She was very self-confident.

"Most studies of the reference interview do not examine the impact of the environment in which it occurs. Given the nature of the environment, accuracy may not be the most appropriate measure of success"

At the other end of the spectrum, we can see the effect of the negative side (a one or two ranking of these same characteristics); 20% showed very little interest in the question, 18% made the observer feel very uncomfortable, 16% were unfriendly, 12% appeared to lack confidence, and 7% appeared to be nonjudgmental. Some observers commented on these negative traits. At times the discomfort began quite early in the interview, most commonly when the librarian was engaged in another activity. The first example represents an interview that began with an audible sigh and seemed to have deteriorated from there:

> This reference interview couldn't have been much more unsatisfactory. The librarian made me feel intrusive. She sighed noisily when I asked my question, was uninterested in my needs, and didn't help me with any alternative suggestions for seeking the information. She never knew whether or not I had been successful; the contrast between the treatment I received and that given to the suited businessmen who were in and out during my visit was extreme.
>
> The man behind the desk—I assume he was a librarian—grimaced upon hearing my inquiry, indicating to me that I had asked a question that would be difficult to answer.

The inclination to return

Table 1, a composite table, is made up from the cross-tabulations between the observer's decision to return to the staff member, and the 11 interpersonal and skill variables. Those who gave high scores to the librarians on the interpersonal variables of comfort, friendliness, and interest in the question were almost certain to say that, given a choice, they would have returned to the same library staff member. So would those who gave a high ranking on the skill variables, determining need and interviewing ability.

The observers in these 266 reference interviews were far more forgiving when library staff members had weak interviewing skills or gave inaccurate answers than they were if the staff member made them feel uncomfortable, showed no interest, or appeared to be judgmental about the question.

A high score on the quality of being nonjudgmental often worked against a librarian—over 20% of those who ranked the librarian as totally nonjudgmental indicated that they probably would not return to her. This quality seems to be overrated by librarians. Likewise highly self-confident staff do not necessarily inspire those who asked them questions to return; 18% of those who rated self-confidence at five said they would not return to the same librarian.

Accuracy, etc., influence success

How does accuracy stack up as a success factor? These findings indicate that accuracy is an important, but not the single, crucial key to the success of the reference interview. When observers gave the librarian the lowest score on accuracy (indicating a totally inaccurate answer), 96% said that if given an option, they would *not* go back again to that person. However, when they indicated that the answer had been largely inaccurate (two on a scale of one to five), over one quarter *were inclined to return* to that same librarian.

On the other hand, nine out of ten observers who gave librarians either a one or a two on the interpersonal variables of friendliness, interest in the question, or comfort level said that they would *not* ask the offending staff member another question. In ranking all the factors, these student observers gave the library staff members the highest scores (5) in the area of search skills and accuracy; 41% were quite satisfied with the answer, 40% judged the answer quite accurate, and 35% felt that the strategy was quite appropriate.

As other studies have shown, librarians frequently have poor interviewing skills.[11] Only one quarter of

the librarians were thought to be excellent interviewers (5) and only 27% found out what the questioner really needed. At times, observers expressed their exasperation at staff members who neglected to determine need or who responded poorly to the question.

One commented,

> As a reference desk employee, I must continually remind myself not to fall into the trap this librarian fell into—presupposing a ready answer based on a few key words of a question as they related to her knowledge of the sources.

When lack of listening skills or knowledge were combined with poor interpersonal skills, observers were quite unforgiving.

Questions raised by study

Although librarians must be concerned about providing accurate responses, widespread use of accuracy as the primary measure of reference success fails to take into consideration the influence of the environment in which most reference interviews take place. The environment seems as much to interfere with as to facilitate an effective reference interview. Observers in some libraries found that the reference desk was not marked in any way; even more often there was no indication of the nature of the occupant of the reference desk.

Because the environment does not send clear messages to the client about the nature of reference service and its providers, librarians must rely heavily on interpersonal skills to make the library user comfortable enough to be willing to ask a stranger an important question.

It may be that the interpersonal skills of the librarian are of crucial importance because they substitute for the knowledge that most clients have about professionals in other fields, including educational background, professional expertise, and name. No other professionals lack these characteristics. This void may explain why observers were more unforgiving of negative interpersonal qualities than other factors.

Because librarians lack "identities," it is more difficult to distinguish each individual's special knowledge. Since the librarian is so closely identified with the environment in which they operate, their expertise is often assumed to be the same as all others who sit in the same room. If the environment remains much as it was 100 years ago, the nature of the reference interaction is likely to continue to be characterized by the single encounter rather than a true client-professional relationship that occurs over succeeding visits.[12]

The impact of the environment should influence the selection of measures of reference interview success. Researchers must measure the influence of interpersonal qualities and such skills as the ability to provide accurate answers. Appropriate measures are the key to finding out what changes must be made.

This study suggests, given a continuation of the present environment, that librarians must appear more interested in the questions they receive and make greater efforts to make their patrons feel comfortable. They must also improve their interviewing skills and do a much better job of finding out what the patron really needs. Because the environment makes it difficult for a person to go back to the librarian for more information, providing an accurate answer at the time a question is asked may be more important than it would be otherwise.

This study suggests that measuring reference success and taking the corrective action needed to improve reference interviews must be done with the aim of improving the environment as well as increasing the effectiveness of the reference librarians who attempt to operate there. Must we assume that the present reference environment, a vestige of the late 19th century, will continue? How long must the library user interact with an unidentified library staff member at a desk that may not even be marked and that only sometimes identifies the *type* of occupant and even less often its *specific* occupant and virtually *never* indicates their credentials? Are librarians willing to consider altering the environment with the aim of increasing reference success and creating an environment that better serves the public?

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The 29th annual survey of U.S. periodical prices

Price Index for 1989: U.S. Periodicals

By Peter R. Young & Kathryn Hammell Carpenter

THIS ANNUAL price index survey and analysis of U.S. periodical prices for 1989 provides an economic indicator of average annual periodical prices in a comparative historical context. This year's price study represents the 29th index published under the sponsorship of the Library Materials Price Index Committee (LMPIC) of the Resources and Technical Services Division of the American Library Association. For the fifth consecutive year, it is based on information supplied and compiled by The Faxon Company. As in years past, joint authorship of this index reflects shared responsibility for price survey data and trend analysis by ALA's LMPIC and Faxon staff.

Because of Faxon's close relationship with periodical publishers, Faxon representatives continue to serve as consultants to serial price studies sponsored by LMPIC. Faxon's automated subscription service database, containing records for over 200,000 domestic and foreign periodical and continuation titles, serves as the subscription price information source for the U.S periodical titles selected for this 1989 survey.

Purpose, scope, and methodology

The purpose of this survey is to provide current information about the pricing practices of periodical publishers as reflected in a survey measuring the relative change in the average price to U.S libraries of subscriptions to U.S. periodical titles over previous years. This information is of use to libraries for budgeting, planning, and cost analysis purposes. In addition, survey data included in this index are intended for use in periodical price trend research measuring and comparing the extent of price changes by general subject categories on a periodic basis. This study follows criteria established in the ANSI Z39.20-1983 Standard for Library Material Price Index Criteria.[1]

The scope of this price index study is limited to a selected sample of 3,942 periodical titles published in the United States, each of which is priced, and meets the criteria established in ANSI Z39.20-1983: each periodical title surveyed represents "a publication that constitutes one issue in a continuous series under the same title, published more than once a year over an indefinite period, with individual issues in the series numbered consecutively or with each issue dated. Newspapers are excluded."

In order to maintain continuity with previous years' indexes, the 1989 index is based upon those same periodical titles as in previous years, except for those titles that ceased publication or otherwise changed for the 1989 subscription year so as to no longer conform to the standard. Serial services, microform editions, electronic journals, annuals, and serial

Table I: Subject Categories in Rank Order by Average Subscription Price for 1989

Rank 1986	Rank 1987	Rank 1988	Rank 1989	Category	Average Subscription Price, 1989
1	1	1	1	Soviet Translations	$621.70
2	2	2	2	Chemistry & Physics	367.99
3	3	3	3	Medicine	199.22
4	4	4	4	Mathematics, etc.	173.21
5	5	5	5	Zoology	142.13
6	6	6	6	Engineering	128.37
7	7	7	7	Psychology	114.52
8	8	8	8	Sociology & Anthropology	66.73
11	11	9	9	Home Economics	60.92
9	9	11	10	Journalism & Communications	58.13
10	10	10	11	Business & Economics	57.93
12	12	12	12	Library & Information Sciences	54.45
13	13	13	13	Education	51.43
17	17	15	14	Labor & Industrial Relations	50.65
14	14	14	15	Industrial Arts	48.68
16	16	16	16	Law	46.01
15	15	17	17	Political Science	45.03
18	18	18	18	Agriculture	36.62
19	19	19	19	Fine & Applied Arts	35.07
21	21	20	20	History	32.27
22	22	21	21	Physical Education & Recreation	30.16
20	20	22	22	General Interest Periodicals	29.69
23	23	23	23	Literature & Language	29.41
24	24	24	24	Philosophy & Religion	28.62
25	25	25	25	Children's Periodicals	16.95
				U.S. Periodicals Index Excluding Soviet Translations	$85.37
				U.S. Periodicals Index Including Soviet Translations	$114.07

Peter R. Young is Director, Academic Information Services, The Faxon Company, Westwood, Massachusetts, and Kathryn Hammell Carpenter is Bibliographer for the Health Sciences, the University of Illinois at Chicago. The authors wish to acknowledge with gratitude the assistance of the following Faxon staff in generating and tabulating data for this report: Barbara Celeste, Patricia Damiani, Robert Davidson, Marcia Jenkins, Ann Scherma, and Peter Zographos

Table II: Subject Categories in Rank Order by Percentage of Increase of 1989 Average Subscription Price over 1988

Rank 1986	Rank 1987	Rank 1988	Rank 1989	Category	Percent Increase 1987 over 1986	Percent Increase 1988 over 1987	Percent Increase 1989 over 1988
10	21	1	1	Labor & Industrial Relations	4.1	14.0	15.0
7	9	8	2	Psychology	10.0	9.3	13.9
6	4	5	3	Engineering	11.7	11.0	11.8
1	10	2	4	Zoology	9.8	12.8	11.6
3	6	4	5	Chemistry & Physics	11.4	12.2	11.5
2	17	3	6	Home Economics	6.8	12.5	11.3
5	5	15	7	Medicine	11.6	6.7	10.3
1	20	16	8	Industrial Arts	4.3	6.6	10.2
4	12	11	9	Agriculture	8.4	7.8	9.1
18	18	19	10	Journalism & Communications	6.6	5.4	8.9
2	3	9	11	Mathematics, etc.	12.4	9.1	8.7
8	1	20	12	Political Science	13.5	4.0	8.4
14	13	17	13	Fine & Applied Arts	8.1	6.0	8.1
12	16	14	14	Business & Economics	6.9	6.9	7.5
9	15	6	15	Education	7.0	10.7	7.3
21	19	9	16	History	6.1	9.1	7.0
16	11	10	17	Law	9.3	8.8	6.2
19	24	18	18	Philosophy & Religion	3.0	5.8	5.6
13	2	16	19	Library & Information Sciences	13.1	6.6	5.5
13	17	12	20	Physical Education & Recreation	6.8	7.2	5.4
20	23	21	21	General Interest Periodicals	3.1	1.8	5.0
11	7	7	21	Soviet Translations	11.3	10.2	5.0
15	22	13	22	Literature & Language	4.0	7.0	4.9
3	14	16	23	Sociology & Anthropology	7.1	6.6	3.8
17	8	11	24	Children's Periodicals	10.4	7.8	3.4
				U.S. Periodicals Index Excluding Soviet Translations	9.9	9.1	9.5
				U.S. Periodicals Index Including Soviet Translations	10.3	9.4	8.2

Table III: Average of Average Annual Percentages of Increase Since 1981 by Broad Subject Categories (Excluding Soviet Translations)

GENERAL INTEREST & CHILDREN'S PERIODICALS	
General Interest	4.7
Children's	9.0
BOTH CATEGORIES	6.8*
HUMANITIES	
Fine & Applied Arts	7.3
Literature & Language	7.6
Philosophy & Religion	7.8
ALL HUMANITIES CATEGORIES	7.5*
SOCIAL SCIENCES	
Business & Economics	9.6
Education	9.1
History	8.3
Journalism	8.8
Labor & Industrial Relations	11.8
Law	8.0
Library & Information Sciences	10.1
Physical Education & Recreation	9.1
Political Science	10.0
Psychology	11.9
Sociology & Anthropology	10.4
ALL SOCIAL SCIENCES CATEGORIES	9.7*
SCIENCE & TECHNOLOGY	
Agriculture	10.2
Chemistry & Physics	11.6
Engineering	11.3
Home Economics	10.7
Industrial Arts	10.1
Mathematics, etc.	11.1
Medicine	11.8
Zoology	13.9
ALL SCIENCE & TECHNOLOGY CATEGORIES	11.3*
U.S. PERIODICALS INDEX Excluding Soviet Translations	**10.6**

* Simple average, not weighted average

publications not adhering to the standard definition of periodical are similarly excluded from the sample. Periodicals that change title are considered to be the same publication if volume numbering remains continuous.

To maintain historical continuity with previous years' studies, additional periodical titles meeting the criteria for inclusion in the study over and above the 3,942 selected titles have not been added to the survey title sample. Although selection procedure represents a deviation from ANSI Z39.20-1983, LMPIC's emphasis on historical continuity justifies the title selection methodology.

Subscription price information for the 1989 subscription year is derived from the Faxon online subscription rate file as of January 31, 1989. This price information, added to Faxon's database from data provided directly by publishers, is applicable to academic libraries in the United States. No secondary sources of price information for 1989 subscriptions are consulted as alternate sources in this study. List prices exclude any related service charges or discounts provided to Faxon by publishers.

The 1989 list prices for the 42 titles included in this study, not available through Faxon because of publisher arrangements, were obtained directly from publishers through telephone contact. Prices for the 25 titles included in the 1989 study listed in Faxon's title database as suspended, delayed, slow, or "status-in-question," and for which Faxon has made no payment to publisher for 1989 subscriptions, are carried forward. If these titles reflect no activity for the 1990 subscription year, they will be dropped from next year's index and substitute titles will replace them.

A total of 56 titles included in the 1988 price index study were dropped from the 1989 study for one of the following: 1) title suspended publication; 2) subscription pricing variance; 3) title no longer available on a subscription basis; 4) title available free from publisher; 5) delayed or slow appearance of issues; 6) title no longer published in the United States; and 7) title no longer conforms to the standard definition of periodical due to changes in publication pattern.

Replacement titles for those 56 dropped from the 1989 price index study sample were selected according to criteria established by the LMPIC. These replacement titles for the 1989 index study were selected as substitutes for dropped titles of the same subject category as listed in the 1988 index, on a title-by-title basis. In situations where multiple possible re-

placement titles were identified, those titles with the greatest number of Faxon client subscriptions were selected for inclusion in the 1989 study.

Replacement titles were identified using *Ulrich's International Periodicals Directory, 1988–1989*, Faxon's INFOSERV: New & Revised Serial Titles database, and Faxon's online file of serial titles available through DataLINX. In addition, the Faxon online databases were consulted for information related to serials undergoing changes in titles or in country of publication. Library of Congress classification, title, date of first issue, publisher, country of origin, and place of publication information for each replacement title was verified in the MARC-S resource database available through the Faxon online network serials system.

Average annual subscription prices charged to libraries and price indexes for each subject category were computed using the methodology specified in the ANSI standard. This procedure involves the following process:

- For each of the 25 subject categories, the total annual 1989 subscription price is divided by the number of titles included in the category to determine an average price by category.
- Each average subscription price for 1989 is divided by the average price for the base period (1977) and multiplied by 100 for each subject category, to arrive at the appropriate 1989 price index for each category.

1989 index highlights

This year's study results show U.S. periodical prices continuing to escalate in 1989, but at a different rate than 1988. The 1989 rate of increase was four percent above last year for U.S. periodicals (not including Soviet Translations) rising to 9.5 percent compared to a 1988 rate increase of 9.1. percent. This 1989 rate of price increase is more gradual than the rate of price increase of eight percent for 1988 compared to 1987. The average subscription price for 1989 (not including Soviet Translations) was $85.37, compared to $77.93 in 1988, a difference of $7.44. The sample size was 3,371 titles.

With Soviet Translations included, the average 1989 U.S. periodical subscription price increased 8.2 percent over 1988. This rate of price increase for all titles in this year's price index study is 13 percent below the 1988 price increase of 9.4 percent compared to 1987. The average 1989 subscription price, including Soviet Translations, was $114.07 compared with $105.45 in 1988, a difference of $8.62. The sample size for 1989 remained at 3,942 titles.

Despite the continuing trend of declining percentage increases from year to year, the prices of U.S. periodicals continue to increase at a more accelerated rate than the rate of increase reflected by the Consumer Price Index (CPI). For the purposes of this comparison, the CPI was recalculated to a base of 1977 as 100 in order to calculate relative rate increases for a common base year.[2]

Rankings of the average subscription prices for the 25 subject catego-

Chart A: CPI vs. USPI

	Index			% Increase Over Previous Year		
	CPI	USPI excl. Sov.Trans.	USPI incl. Sov.Trans.	CPI	USPI excl. Sov.Trans.	USPI incl. Sov.Trans.
1986	180.9 (328.4)	264.3	261.5	1.9	8.9	8.2
1987	187.5 (340.4)	290.4	288.3	3.7	9.9	10.3
1988	195.2 (354.3)	316.9	315.5	4.1	9.1	9.4
1989	(Not yet avail.)	347.2	341.3	--	9.5	8.2

Table IV: Breakdown of Mathematics, etc. Category

Subcategory	No. of Titles			Average Price			% Increase		
	1987	1988	1989	1987	1988	1989	1987	1988	1989
Mathematics	71	73	74	$199.73	$216.18	$232.56	9.8	8.2	7.6
Earth Sciences (incl. Geography titles)	63	63	63	97.85	106.25	116.29	13.1	8.6	9.5
Life Sciences	46	44	44	218.90	244.38	261.16	17.1	11.6	6.9
Botanical Sciences	29	29	29	72.48	76.90	84.86	8.2	6.1	10.4
General Science (incl. Astronomy titles)	29	29	28	77.57	84.93	97.75	7.2	9.5	15.1
MATHEMATICS, ETC.	238	238	238	146.08	159.33	173.21	12.4	9.1	8.7

Table V: Percentage of Titles Increasing in Price Per Subject Category: Three-Year Comparison

Category	1987	1988	1989	Average 1987–89
Agriculture	24	27	28	26
Business & Economics	36	37	39	37
Chemistry & Physics	81	81	85	82
Children's Periodicals	37	23	[illegible]	32
Education	37	35	52	41
Engineering	54	46	58	53
Fine & Applied Arts	39	34	35	36
General Interest Periodicals	28	28	33	30
History	22	21	30	24
Home Economics	78	31	41	50
Industrial Arts	40	35	53	43
Journalism & Communications	39	32	42	38
Labor & Industrial Relations	34	34	40	36
Law	27	33	30	30
Library & Information Sciences	50	36	31	39
Literature & Language	31	35	34	33
Mathematics, etc.	59	55	59	58
Medicine	65	72	77	71
Philosophy & Religion	25	26	29	27
Physical Education & Recreation	23	28	34	28
Political Science	35	33	46	38
Psychology	73	67	69	70
Sociology & Anthropology	40	46	34	40
Soviet Translations	92	97	55	81
Zoology	46	52	59	52
U.S. PERIODICALS INDEX Excluding Soviet Translations	43	41	46	43
U.S. PERIODICALS INDEX Including Soviet Translations	45	44	46	45

Table VI: U.S. Periodicals (Including Soviet Translations) 1989 Average Prices by LC Classification Codes

Classification code			No. of Titles 1989	Average Price 1989	No. of Titles 1988	Average Price 1988	Average Price 1987	Percent Increase 1989/1988	Percent Increase 1988/1987
A	General Works		118	$23.07	113	$23.10	$21.29	-0.1	8.5
B	Philosophy, Psychology, Religion		210	55.47	207	48.83	45.69	13.6	6.9
	B-BD, BJ	Philosophy	39	50.42	37	48.64	45.86	3.7	6.1
	BF	Psychology	77	98.87	77	82.49	77.92	19.9	5.9
	BL-BX	Religion	94	22.02	93	21.05	19.91	4.6	5.7
C	Auxiliary Sciences of History		13	37.85	12	38.75	37.75	-2.3	2.6
D	History: General & Old World		66	42.03	66	38.97	37.17	7.8	4.9
E-F	History: America		119	24.71	120	23.17	21.84	6.6	6.1
G	Geography, Anthropology, Recreation		157	59.02	154	56.42	50.98	4.6	10.7
	G-GC	Geography, Oceanography	35	136.78	35	128.98	116.44	6.0	10.8
	GN	Anthropology	19	77.26	19	72.56	69.81	6.5	3.9
	GV	Recreation	94	27.98	92	26.79	24.67	4.5	8.6
		All other G codes	9	42.33	8	41.38	39.50	2.3	4.7
H	Social Sciences		572	62.86	574	58.46	53.90	7.5	8.5
	H	General	29	66.00	29	58.86	51.98	12.1	13.2
	HB-HC	Economic theory, hist. & cond.	50	82.06	52	76.26	71.51	7.6	6.6
	HD	Land, Agriculture, Industry	130	52.28	131	49.15	41.76	6.4	17.7
	HE	Transportation & Communication	29	39.36	30	38.34	37.82	2.7	1.4
	HF	Commerce	99	53.82	99	48.98	46.25	9.9	5.9
	HG-HJ	Finance, Public finance	76	61.72	74	56.94	51.93	8.4	9.7
	HM	Sociology (General)	28	100.93	29	94.50	87.25	6.8	8.3
	HQ	Family, Marriage, Woman	43	78.86	41	78.13	73.23	0.9	6.7
	HV	Social/public welfare, Criminology	47	73.41	47	67.26	64.82	9.1	3.8
		All other H codes	41	56.54	42	50.69	48.28	11.5	5.0
J	Political Science		77	50.08	78	45.61	44.28	9.8	3.0
K	Law		265	47.45	264	44.47	40.65	6.7	9.4
L	Education		182	49.20	183	45.12	40.47	9.0	11.5
M	Music		38	31.00	38	28.70	27.13	8.0	5.8
N	Fine Arts		76	36.43	76	34.24	32.44	6.4	5.5
P	Language and literature		223	34.74	225	32.41	30.83	7.2	5.1
	P	Philology & linguistics	20	57.65	20	53.65	49.00	7.5	9.5
	PN	Literary history	113	36.69	113	33.97	32.34	8.0	5.0
	PR-PS	English literature, American literature	41	22.90	42	21.53	20.64	6.4	4.3
		All other P codes	49	30.80	50	29.54	27.92	4.3	5.8
Q	Science		588	346.68	592	320.22	294.14	7.6	8.9
	Q	Science (General)	37	134.50	40	119.27	99.55	11.3	19.8
	QA	Mathematics	108	297.69	107	280.01	266.12	5.9	5.2
	QB	Astronomy	16	336.50	16	317.12	268.12	5.8	18.3
	QC	Physics	101	521.71	100	482.61	432.34	7.5	11.6
	QD	Chemistry	80	493.44	80	459.99	431.10	6.8	6.7
	QE	Geology	29	188.59	29	177.97	166.10	5.6	7.1
	QH	Natural History (incl. General Biology)	81	352.26	81	329.67	296.82	6.4	11.1
	QK	Botany	19	125.63	19	118.26	108.16	5.9	9.3
	QL	Zoology	53	208.48	53	190.08	174.69	8.8	8.8
	QP	Physiology	44	332.55	47	290.74	261.05	12.6	11.4
	QR	Microbiology	20	355.05	20	342.75	327.65	3.5	4.6
R	Medicine		277	127.48	276	116.51	108.97	8.5	6.9
	R	Medicine (General)	36	134.18	36	123.78	119.90	7.8	3.2
	RA	Public aspects of medicine	34	123.25	34	115.12	113.71	6.6	1.2
	RC	Internal medicine	108	128.61	105	118.92	108.96	7.5	9.1
	RD	Surgery	22	113.00	22	100.05	93.41	11.5	7.1
	RM	Therapeutics, Pharmacy	20	120.73	20	109.75	99.24	9.1	10.6
		All other R codes	57	131.57	59	117.02	109.41	11.1	7.0
S	Agriculture		216	52.57	215	46.45	42.52	11.7	9.2
	S	Agriculture (General)	71	59.29	70	54.19	50.04	8.6	8.3
	SB	Plant culture	47	49.47	48	46.65	43.79	5.7	6.5
	SF	Animal culture	72	37.31	72	33.89	29.36	9.2	15.4
		All other S codes	26	82.09	25	60.50	57.67	26.3	4.9
T	Technology		592	147.44	591	135.61	119.06	8.0	13.9
	T	Technology (General)	29	113.26	28	103.44	96.96	8.7	6.7
	TA	Engineering, Civil engineering	72	228.90	69	219.09	205.15	4.3	6.8
	TD	Environmental tech., Sanitary eng.	27	121.72	27	107.76	97.43	11.5	10.6
	TH	Building construction	26	59.26	25	56.14	48.75	5.3	15.2
	TJ	Mechanical engineering & machinery	58	213.58	59	194.67	172.75	8.9	12.7
	TK	Electricrical eng., Electronics	58	180.03	58	163.89	137.92	9.0	18.8
	TL	Motor vehicle, Aeronautics, Astronautics	30	74.58	30	67.63	65.71	9.3	2.9
	TN	Mining engineering, Metallurgy	41	273.55	42	257.73	221.48	5.8	16.4
	TP	Chemical technology	85	211.36	85	190.09	158.80	10.1	19.7
	TS	Manufactures	63	62.78	64	58.25	53.47	7.2	8.9
	TT	Handicrafts, Arts & Crafts	32	24.58	32	22.80	22.09	7.2	3.2
	TX	Home Economics	41	48.92	42	42.37	39.27	13.4	7.9
		All other T codes	30	56.63	30	52.30	48.10	7.6	8.7
U-V	Military Science, Naval Science		22	23.39	23	26.20	25.02	-12.0	4.7
Z	Bibliography, Library Science		131	64.72	130	60.67	56.33	6.3	7.7

ries for 1989, once again this year, demonstrate that periodical titles for Chemistry and Physics represent the highest average subscription price of $367.99, with Soviet Translations excluded. Those titles in the subject category of Children's Periodicals rank lowest in subscription prices with an average price of $16.95. The average 1989 subscription price for all titles included in this study is $114.07, or $85.37 if Soviet Translations are excluded.

Chart A reflects the relationship between the U.S. Periodical Index (USPI) and the Consumer Price Index (CPI) both with and without the inclusion of Soviet Translations. In 1989, the average price of U.S. periodicals (including Soviet Translations) increased 2.3 times the U.S. rate of inflation. When Soviet Translations were excluded, the rate of increase declined slightly, to two times the CPI for 1988. This rate of increase for 1989 is slower than the rate of increase for 1988 which was 2.5 times the U.S rate of inflation with Soviet translations included. This trend represents a stabilization from the 1987 study in which prices were found to increase at a rate five times greater than the CPI.

Table I provides a ranking of the

Table VII: U.S. Periodicals: 1977–1989
Index of 100.0 Equivalent to Average Prices for 1977
Parenthetical information applies to 1989

Year	No. of Titles	Average Price	Percent Increase	Index
U.S. PERIODICALS Excluding Soviet Translations (56 titles dropped; 56 added; 46% of the titles increased in price)				
1977	3,218	24.59	--	100.0
1981	3,425	39.13	13.3	159.1
1982	3,544	44.80	14.5	182.2
1983	3,674	50.23	12.1	204.3
1984	3,731	54.97	9.4	223.5
1985	3,731	59.70	8.6	242.8
1986	3,731	65.00	8.9	264.3
1987	3,731	71.41	9.9	290.4
1988	3,731	77.93	9.1	316.9
1989	3,731	85.37	9.5	347.2
U.S. PERIODICALS Including Soviet Translations (56 titles dropped; 56 added; 46% of the titles increased in price)				
1977	3,418	33.42	--	100.0
1981	3,629	51.20	12.9	153.2
1982	3,750	58.72	14.7	175.7
1983	3,881	65.74	12.0	196.7
1984	3,942	72.47	10.2	216.8
1985	3,942	80.78	11.5	241.7
1986	3,942	87.38	8.2	261.5
1987	3,942	96.36	10.3	288.3
1988	3,942	105.45	9.4	315.5
1989	3,942	114.07	8.2	341.3
AGRICULTURE (1 title dropped; 1 added; 28% of the titles increased in price)				
1977	138	11.58	--	100.0
1981	146	17.24	13.1	148.9
1982	149	19.76	14.6	170.6
1983	150	21.27	7.6	183.7
1984	153	24.06	13.1	207.8
1985	153	26.05	8.3	225.0
1986	153	28.71	10.2	248.0
1987	153	31.14	8.4	268.9
1988	153	33.56	7.8	289.8
1989	153	36.62	9.1	316.2
BUSINESS & ECONOMICS (6 titles dropped; 6 added; 39% of the titles increased in price)				
1977	236	18.62	--	100.0
1981	249	28.88	13.6	155.1
1982	253	32.67	13.1	175.5
1983	257	35.67	9.2	191.6
1984	262	38.87	9.0	208.8
1985	262	44.41	14.3	238.5
1986	262	47.15	6.2	253.2
1987	262	50.39	6.9	270.6
1988	262	53.89	6.9	289.4
1989	262	57.93	7.5	311.1
CHEMISTRY & PHYSICS (1 title dropped; 1 added; 85% of the titles increased in price)				
1977	135	93.76	--	100.0
1981	163	156.30	13.7	166.7
1982	165	177.94	13.8	189.8
1983	167	207.94	16.9	221.8
1984	170	228.90	10.1	244.1
1985	170	238.43	4.2	254.3
1986	170	264.05	10.7	281.6
1987	170	294.05	11.4	313.6
1988	170	329.99	12.2	352.0
1989	170	367.99	11.5	392.5
CHILDREN'S PERIODICALS (3 titles dropped; 3 added; 37% of the titles increased in price)				
1977	67	5.82	--	100.0
1981	71	8.56	9.0	147.1
1982	76	9.90	15.7	170.1
1983	78	11.49	16.1	197.4
1984	78	12.21	6.3	209.8
1985	78	13.31	9.0	228.7
1986	78	13.76	3.4	236.4
1987	78	15.19	10.4	239.7
1988	78	16.39	7.8	281.5
1989	78	16.95	3.4	291.2
EDUCATION (3 titles dropped; 3 added; 52% of the titles increased in price)				
1977	168	17.54	--	100.0
1981	184	25.18	7.4	143.6
1982	190	28.18	11.9	160.7
1983	199	31.36	11.3	178.8
1984	203	34.01	8.5	193.9
1985	203	37.81	11.2	215.6
1986	203	40.47	7.0	230.7
1987	203	43.30	7.0	246.9
1988	203	47.95	10.7	273.4
1989	203	51.43	7.3	293.2
ENGINEERING (4 titles dropped; 4 added; (58% of the titles increased in price)				
1977	235	35.77	--	100.0
1981	241	54.55	11.0	152.5
1982	248	61.54	12.8	172.0
1983	265	73.18	18.9	204.6
1984	265	78.70	7.5	220.0
1985	265	84.38	7.2	235.9
1986	265	92.66	9.8	259.0
1987	265	103.49	11.7	289.3
1988	265	114.83	11.0	321.0
1989	265	128.37	11.8	358.9
FINE & APPLIED ARTS (3 titles dropped; 3 added; 35% of the titles increased in price)				
1977	141	13.72	--	100.0
1981	140	20.51	9.9	149.5
1982	142	23.35	13.8	170.2
1983	145	25.17	7.8	183.5
1984	145	26.90	6.9	196.1
1985	145	27.03	0.5	197.0
1986	145	28.28	4.6	206.1
1987	145	30.58	8.1	222.9
1988	145	32.43	6.0	236.3
1989	145	35.07	8.1	255.6
GENERAL INTEREST PERIODICALS (3 titles dropped; 3 added; 33% of the titles increased in price)				
1977	161	16.19	--	100.0
1981	172	21.83	9.9	134.8
1982	176	23.93	9.6	147.8
1983	177	26.43	10.4	163.2
1984	181	27.90	5.6	172.3
1985	181	26.41	-5.3	163.1
1986	181	26.95	2.0	166.4
1987	181	27.79	3.1	171.7
1988	181	28.29	1.8	174.7
1989	181	29.69	5.0	183.4
HISTORY (2 titles dropped; 2 added; 30% of the titles increased in price)				
1977	138	12.64	--	100.0
1981	143	17.96	13.9	142.1
1982	143	20.37	13.4	161.2
1983	151	22.43	10.1	177.5
1984	151	23.68	5.6	187.3
1985	151	25.55	7.9	202.1
1986	151	26.04	1.9	206.0
1987	151	27.64	6.2	218.7
1988	151	30.16	9.1	238.6
1989	151	32.27	7.0	255.3
HOME ECONOMICS (2 titles dropped; 2 added; 41% of the titles increased in price)				
1977	74	18.73	--	100.0
1981	79	27.34	11.0	146.0
1982	84	34.27	25.3	183.0
1983	88	35.68	4.1	190.5
1984	90	37.15	4.1	198.3
1985	90	41.04	10.5	219.1
1986	90	45.59	11.1	243.4
1987	90	48.67	6.8	259.9
1988	90	54.73	12.5	292.2
1989	90	60.92	11.3	325.3

Table VII (Continued): U.S. Periodicals: 1977–1989
Index of 100.0 Equivalent to Average Prices for 1977
Parenthetical information applies to 1989

INDUSTRIAL ARTS
(1 title dropped; 1 added; 53% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	87	14.37	--	100.0
1981	91	22.62	9.3	157.4
1982	99	27.13	19.9	188.8
1983	104	28.83	6.3	200.6
1984	106	30.40	5.4	211.6
1985	106	35.09	15.4	244.2
1986	106	39.75	13.3	276.6
1987	106	41.45	4.3	288.4
1988	106	44.20	6.6	307.6
1989	106	48.68	10.2	338.8

JOURNALISM & COMMUNICATIONS
(2 titles dropped; 2 added; 42% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	85	16.97	--	100.0
1981	85	29.80	9.0	175.6
1982	86	33.91	13.8	199.8
1983	88	37.39	10.3	220.3
1984	90	39.25	5.0	231.3
1985	90	46.08	17.4	271.5
1986	90	47.54	3.2	280.1
1987	90	50.66	6.6	298.5
1988	90	53.39	5.4	314.6
1989	90	58.13	8.9	342.6

LABOR & INDUSTRIAL RELATIONS
(1 title dropped; 1 added; 40% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	61	11.24	--	100.0
1981	65	21.68	15.1	192.9
1982	65	24.72	14.0	219.9
1983	69	29.22	18.2	260.0
1984	70	29.87	2.2	265.7
1985	70	34.75	16.3	309.2
1986	70	37.14	6.9	330.4
1987	70	38.65	4.1	343.9
1988	70	44.06	14.0	392.0
1989	70	50.65	15.0	450.6

LAW
(7 titles dropped; 7 added; 30% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	229	17.36	--	100.0
1981	242	24.80	7.8	142.9
1982	255	27.53	11.0	158.6
1983	267	29.66	7.7	170.9
1984	273	31.31	5.6	180.4
1985	273	35.13	12.2	202.4
1986	273	36.44	3.7	209.9
1987	273	39.82	9.3	229.4
1988	273	43.33	8.8	249.6
1989	273	46.01	6.2	265.0

LIBRARY & INFORMATION SCIENCES
(4 titles dropped; 4 added; 31% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	89	16.97	--	100.0
1981	103	28.47	22.5	167.8
1982	111	33.52	17.7	197.5
1983	117	36.72	9.5	216.4
1984	118	38.85	5.8	228.9
1985	118	40.66	4.7	239.6
1986	118	42.82	5.3	252.4
1987	118	48.42	13.1	285.3
1988	118	51.61	6.6	304.1
1989	118	54.45	5.5	320.8

LITERATURE & LANGUAGE
(3 titles dropped; 3 added; 34% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	138	11.82	--	100.0
1981	146	17.30	13.1	146.4
1982	156	19.39	12.1	164.0
1983	157	21.19	9.3	179.3
1984	158	23.02	8.6	194.8
1985	158	24.18	5.0	204.6
1986	158	25.21	4.2	213.3
1987	158	26.21	4.0	221.7
1988	158	28.04	7.0	237.3
1989	158	29.41	4.9	248.8

MATHEMATICS, BOTANY, GEOLOGY, & GENERAL SCIENCE
(2 titles dropped; 2 added; 59% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	185	47.13	--	100.0
1981	206	75.62	12.0	160.4
1982	217	87.99	16.4	186.7
1983	228	97.26	10.5	206.4
1984	238	106.56	9.6	226.1
1985	238	116.93	9.7	248.1
1986	238	129.95	11.1	275.7
1987	238	146.08	12.4	310.0
1988	238	159.33	9.1	338.1
1989	238	173.21	8.7	367.5

MEDICINE
(0 titles dropped; 0 added; 77% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	172	51.31	--	100.0
1981	172	86.38	17.7	168.3
1982	172	102.87	19.1	200.5
1983	177	112.72	9.6	219.7
1984	182	125.57	11.4	244.7
1985	182	137.92	9.8	268.8
1986	182	151.77	10.0	295.8
1987	182	169.36	11.6	330.1
1988	182	180.67	6.7	352.1
1989	182	199.22	10.3	388.3

PHILOSOPHY & RELIGION
(2 titles dropped; 2 added; 29% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	107	10.89	--	100.0
1981	111	15.40	4.5	141.4
1982	117	17.92	16.4	164.6
1983	126	20.21	12.8	185.6
1984	130	21.94	8.6	201.5
1985	130	24.30	10.8	223.1
1986	130	24.85	2.3	228.2
1987	130	25.60	3.0	235.1
1988	130	27.09	5.8	248.8
1989	130	28.62	5.6	262.8

PHYSICAL EDUCATION & RECREATION
(2 titles dropped; 2 added; 34% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	130	10.00	--	100.0
1981	139	15.42	11.5	154.2
1982	142	16.91	9.7	169.1
1983	150	19.07	12.8	190.7
1984	151	20.54	7.7	205.4
1985	151	23.72	15.5	237.2
1986	151	24.78	5.3	249.8
1987	151	26.67	6.8	266.7
1988	151	28.60	7.2	286.0
1989	151	30.16	5.4	301.6

POLITICAL SCIENCE
(0 titles dropped; 0 added; 46% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	123	14.83	--	100.0
1981	128	22.69	17.6	153.0
1982	133	25.89	14.1	174.6
1983	136	28.97	11.9	195.3
1984	136	32.43	11.9	218.7
1985	136	32.72	0.9	220.6
1986	136	35.19	7.5	237.3
1987	136	39.95	13.5	269.4
1988	136	41.55	4.0	280.1
1989	136	45.03	8.4	303.6

PSYCHOLOGY
(0 titles dropped; 0 added; 69% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	110	31.74	--	100.0
1981	125	47.27	12.7	148.9
1982	131	54.21	14.7	170.8
1983	136	59.31	9.4	186.9
1984	138	69.74	17.6	219.7
1985	138	76.34	9.5	240.5
1986	138	83.71	9.7	263.7
1987	138	92.05	10.0	290.0
1988	138	100.57	9.3	316.8
1989	138	114.52	13.9	360.8

SOCIOLOGY & ANTHROPOLOGY
(4 titles dropped; 4 added; 34% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	128	19.68	--	100.0
1981	136	31.37	13.8	159.4
1982	145	36.38	16.0	184.9
1983	149	40.54	11.4	206.0
1984	149	43.87	8.2	222.9
1985	149	50.87	16.0	258.5
1986	149	56.31	10.7	286.1
1987	149	60.29	7.1	306.4
1988	149	64.27	6.6	326.6
1989	149	66.73	3.8	339.1

SOVIET TRANSLATIONS
(0 titles dropped; 0 added; 55% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	200	175.41	--	100.0
1981	204	253.79	10.5	144.7
1982	206	298.22	17.5	170.0
1983	207	341.04	14.4	194.4
1984	211	381.86	12.0	217.7
1985	211	453.47	18.8	258.5
1986	211	483.09	6.5	275.4
1987	211	537.54	11.3	306.4
1988	211	592.22	10.2	337.6
1989	211	621.70	5.0	354.4

ZOOLOGY
(0 titles dropped; 0 added; 59% of the titles increased in price)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	81	33.69	--	100.0
1981	88	48.32	8.4	143.4
1982	89	61.07	26.4	181.3
1983	93	70.74	15.8	210.0
1984	94	78.35	10.8	232.6
1985	94	90.75	15.8	269.4
1986	94	102.83	13.3	305.2
1987	94	112.91	9.8	335.1
1988	94	127.33	12.8	378.0
1989	94	142.13	11.6	421.9

average subscription prices for the 25 subject categories included in the survey. Grouping the subject categories into the following nine price ranges, based on 1989 subscription rate prices in U.S. dollars results in the following breakdown:

Under $20	1 category
$20—$29	3 categories
$30—$39	4 categories
$40—$49	3 categories
$50—$59	5 categories
$60—$69	2 categories
$100–$149	3 categories
$150–$199	2 categories
Over $300	2 categories

The rankings differ only slightly from those compiled for 1987 and 1988. Beyond Soviet Translations, Chemistry and Physics titles included in the sample have the next highest average subscription price, followed by those in Medicine and Mathematics. There has been no change in the eight subject categories ranked the highest in average price in the last four years. For 1989, the weighted average price of titles in these eight subject areas was $237.97, or twice the weighted average 1989 subscription price based on all 25 subject categories.

Table II provides a ranking of subject categories by percentage of average annual increase in subscription price in 1989 over the average reported for 1988. When percentage of increase is the same, the categories are assigned the same ranking. Titles in the Labor and Industrial Relations sample continue to display the highest percentage of increase for 1989, continuing a trend noted in last year's study, followed by titles in Psychology, which in 1989 increased 13.9 percent over 1988. Average increases over ten percent in 1989 were also recorded for titles in the Engineering, Zoology, Chemistry and Physics, Home Economics, Medicine, and Industrial Arts samples.

Of the eight subject categories showing the highest average subscription price for 1989, five subject categories also ranked among those that experienced the greatest percent increase in 1989 subscription prices. These subjects were Medicine, Zoology, Psychology, as well as Chemistry and Physics, and Engineering.

Table III details the averages of the average annual percentage increases since 1981 based on broad subject categories. While these rates are not weighted averages and so do not reflect the relative number of titles in each category, they do reveal general price increases for broad subject categories and so may be useful in budget allocation. The rate of increase for titles in the Science and Technology category is highest at 11.3 percent and lowest at 6.8 percent for General Interest and Children's Periodicals. Within the Science and Technology subject categories, the subscription prices of periodicals in Zoology led the way, increasing 13.9 percent over the last eight years.

Table IV provides a three-year breakdown of the Mathematics, etc. category into five detailed subject components. In 1989, the average price of titles in the General Science sample rose to $97.75, the highest rate of increase recorded within the Mathematics category. This represents a 15.1 percent increase over 1988 for the General Science (including Astronomy) category. The Life Sciences category, which had the highest rate of increase in 1987 and 1988, ranked fifth in 1989 with a rate increase of 6.9 percent. In general, 1989 represents the third straight year of declining overall percentage increases in subscription prices for periodicals in the Mathematics, etc. category.

Table V consists of a three-year comparison of the percentage of titles increasing in price in each subject category for the 1987–1989 period. An average of 46 percent of titles in the sample increased in price in 1989, which represents a slight two or three percent increase compared with the three-year average. Eighty-five percent of the Chemistry and Physics titles increased prices in 1989, to lead those subject categories increasing in price. Soviet Translations increased only 55 percent in 1989, a dramatic drop from 97 percent in 1988.

Table VI provides average price for 1989 by a detailed subject breakdown of the titles in the periodicals index according to the initial single- and two-letter LC classification assigned to each title in Faxon's online title database. The highest rates of increase in 1989 were for titles classified in Psychology (BF) at 19.9 percent and in S categories other than Agriculture (S), Plant Culture (SB), and Animal Culture (SF) at 26.3 percent. Titles classified as General Works (A) decreased .1 percent in price; those in Auxiliary Sciences of History (C) decreased 2.3 percent, and those in Military and Naval Sciences (U,V) decreased 12 percent.

Table VII compares the price indexes for U.S. periodicals for each of the 25 individual subject categories using 1977 as the base period. With 46 percent of sampled titles increasing in price, the 1989 price index reflects a continuous price increase trend of nearly 250 percent over the last 12 years. The average annual price increase since 1977 is 10.9 percent, but over the past six years (1984–1989) the average annual price increase has been 9.2. percent for those titles sampled excluding Soviet Translations.

In most categories, the USPI has risen to 300 or above, indicating an increase in price of 300 percent over prices compiled for 1977, the base year. While the annual rate for U.S. periodicals has decreased from double to single digits in most categories in recent years, Table VII reveals that rising prices continue to be a significant trend, especially for those periodicals in the specific subject categories of Chemistry and Physics, Engineering, Labor and Industrial Relations, Psychology, and Zoology.

The authors acknowledge that the average prices reported in these annual studies of 3,942 U.S. periodical titles may vary from the results of other pricing studies performed from information derived from Faxon's database using different sample selection criteria and from studies conducted by individual libraries that reflect unique local serials collections. Methodological differences notwithstanding, it is important to note that most published price indexes are not intended as a substitute for more precise or relevant statistical information based on actual individual library purchases. Libraries developing local indexes of U.S. periodical prices and price trends for multiple years can usefully employ information contained in this annual price index for comparison purposes and as a context for monitoring trends from a national framework.

Ongoing responsibility for continuing the price indexes for periodicals and serials services rests with the ALA RTSD Library Materials Price Index Committee. Comments may be addressed to Kathryn Hammell Carpenter, Bibliographer for the Health Sciences at the University of Illinois at Chicago, Box 8198, Chicago, IL 60680, the current committee chair.

References

1. American Standards Institute. American National Standard for Library and Information Sciences and Related Publishing Practices—Library Materials—Criteria for Price Indexes. ANSI Z39.20-1983, New York, 1983.
2. Consumer Price Information obtained from the U.S. Bureau of Labor Statistics for the 1988 calendar year was recalculated to a base year of 1977. For the purposes of this article, the USPI 1977 base period has been maintained to provide consistency with prior years' U.S. periodical price indexes. The CPI numbers (1967 = 100) were converted to a base year of 1977 = 100 by multiplying each index number by 100 and then dividing by the CPI for 1977 (181.5).

The 26th U.S. Serial Services survey

Price Index for 1989: U.S. Serial Services

By Mary Elizabeth Clack

THIS IS THE 26TH annual survey of U.S Serial Services, produced by the American Library Association Resources and Technical Services Division—Resources Section Library Materials Price Index Committee working in conjunction with The Faxon Company.

The index for 1989 was produced following the American National Standard for Library and Information Sciences and Related Publishing Practice—Library Materials—Criteria for Price Indexes (ANSI Z39.20-1983). The standard defines a U.S. Serial Service as "a periodical publication that revises, cumulates, abstracts, or indexes information in a specific field on a regular basis by means of new or replacement issues, pages, or cards, intended to provide information otherwise not readily available."

The data show that the average price of a U.S. Serial Service was $363.20 for 1989, a 6.4 percent increase over 1988. This average is for the six subject categories, excluding the Wilson Index, which is now produced by the Wilson Company as a separate index. (Unfortunately, the Wilson Index was not available to meet our press deadline this year. The Wilson Index will be published in 1990, with data for both 1989 and 1990.)

The average price in the Social Sciences Category dropped 5.3 percent, due to the fact that the prices of the two expensive titles, Leading National Advertiser Multi-Media Report Service and LNA-PIB Magazine Service, dropped by $3,965 in the "Media, Media Bureau, and Others" subscriber category, and four titles were discontinued, two of which were priced over $1000. If the two Leading National Advertiser titles are omitted, the average price for 1989 is $345.10—less than a ten percent increase over the 1988 average price of $343.18.

Mary Elizabeth Clack is Serial Records Librarian, Harvard College Library. The author would like to thank Robert Davidson, Manager of Budget and Administration, The Faxon Company, and his staff for their assistance in the production of this index

Serial Services

Table 1: U.S. SERIALS SERVICES
(excluding "Wilson Index"; excluding Soviet Translations as of 1988)

Year	No. of Titles	Average Price	Percent Increase	Index
1977	1,432	$142.27	--	100.0
1978	1,426	153.95	8.2	108.2
1979	1,450	171.06	11.1	120.2
1980	1,470	194.21	13.5	136.5
1981	1,477	219.75	13.2	154.5
1982	1,494	244.52	11.3	171.9
1983	1,525	274.72	12.4	182.1
1984	1,537	295.13	7.4	207.4
1985–87	n.a.	n.a.	n.a.	n.a.
1988	1,310	341.32	n.a.	239.9
1989	1,308	363.20	6.4	255.3

Table 2: BUSINESS

Year	No. of Titles	Average Price	Percent Increase	Index
1977	255	$216.28	--	100.0
1978	262	222.45	2.9	102.9
1979	270	249.05	12.0	115.2
1980	279	294.00	18.0	135.9
1981	271	343.29	16.8	158.7
1982	276	371.03	8.1	171.6
1983	286	417.83	12.6	193.2
1984	289	437.07	4.6	202.1
1985–87	n.a.	n.a.	n.a.	n.a.
1988	281	458.33	n.a.	211.9
1989	281	493.23	7.6	228.1

Table 3: GENERAL & HUMANITIES

Year	No. of Titles	Average Price	Percent Increase	Index
1977	113	$90.44	--	100.0
1978	113	94.88	4.9	104.9
1979	114	118.83	25.2	131.4
1980	118	124.28	4.6	137.4
1981	120	142.04	14.3	157.1
1982	119	160.03	12.7	176.9
1983	120	186.67	16.6	206.4
1984	122	196.55	5.3	217.3
1985–87	n.a.	n.a.	n.a.	n.a.
1988	116	225.95	n.a.	249.8
1989	116	255.27	13.0	282.3

Table 4: LAW

Year	No. of Titles	Average Price	Percent Increase	Index
1977	229	$126.74	--	100.0
1978	235	137.91	8.8	108.8
1979	241	158.65	15.0	125.2
1980	248	184.38	16.2	145.5
1981	251	212.85	15.4	167.9
1982	256	232.61	9.3	183.5
1983	268	249.64	7.3	197.0
1984	272	275.23	10.3	217.2
1985–87	n.a.	n.a.	n.a.	n.a.
1988	265	338.13	n.a.	266.8
1989	265	354.32	4.8	279.6

Table 5: SCIENCE & TECHNOLOGY

Year	No. of Titles	Average Price	Percent Increase	Index
1977	297	$141.16	--	100.0
1978	289	160.61	13.8	113.8
1979	290	173.96	8.3	123.2
1980	288	191.35	10.0	135.6
1981	287	214.01	11.8	151.6
1982	286	229.98	7.5	162.9
1983	282	270.94	17.8	191.9
1984	281	295.36	9.0	209.2
1985–87	n.a.	n.a.	n.a.	n.a.
1988	302	378.37	n.a.	268.0
1989	302	420.19	11.1	297.7

Table 6: SOCIAL SCIENCES

Year	No. of Titles	Average Price	Percent Increase	Index
1977	134	$145.50	--	100.0
1978	136	153.94	5.8	105.8
1979	139	169.55	10.1	116.5
1980	143	190.07	12.1	130.6
1981	144	215.12	13.2	147.8
1982	149	249.03	15.8	171.2
1983	159	266.43	7.0	183.1
1984	159	283.82	6.5	195.1
1985–87	n.a.	n.a.	n.a.	n.a.
1988*	156	441.67	n.a.	303.6
1989**	156	418.14	-5.3	287.4

* The average price includes Leading National Advertiser Multi-Media Report Service at $8,750 and LNA-PIB Magazine Service, priced at $7,300. If these titles are omitted, the average price drops to $343.18

** The average price includes Leading National Advertiser Multi-Media Report Service at $4,200 and LNA-PIB Magazine Service, priced at $7,885. If these titles are omitted, the average price drops to $345.10

Table 7: U.S. DOCUMENTS

Year	No. of Titles	Average Price	Percent Increase	Index
1977	204	$62.88	--	100.0
1978	196	72.52	15.3	115.3
1979	198	75.87	4.6	120.7
1980	197	78.87	4.0	125.4
1981	200	84.48	7.1	134.4
1982	202	99.05	17.2	157.5
1983	203	101.24	2.2	161.0
1984	203	97.37	-3.8	154.9
1985–87	n.a.	n.a.	n.a.	n.a.
1988	190	101.88	n.a.	162.0
1989	188	110.79	8.7	176.2

Table 8: WILSON INDEX

Year	No. of Titles	Average Price	Percent Increase	Index
1977	18	$87.51	--	100.0
1978	18	95.99	9.7	109.7
1979	19	104.68	9.1	119.6
1980	19	114.05	9.0	130.3
1981	19	122.30	7.2	139.8
1982	19	132.55	8.4	151.5
1983	19	139.93	5.6	159.9
1984	19	155.77	11.3	178.0
1985	19	176.98	13.6	202.2
1986	19	193.54	9.4	221.2
1987	19	203.59	5.2	232.6
1988*	19	211.31	3.8	241.5
1989**	n.a.	n.a.	n.a.	n.a.

* The 1988 average price and index are estimated figures

**Data for 1989 were unavailable at time of publication